Center Innovation Fund: KSC CIF

Cold Plasma Cleaning and Disinfection of Produce and Surfaces

Completed Technology Project (2016 - 2017)

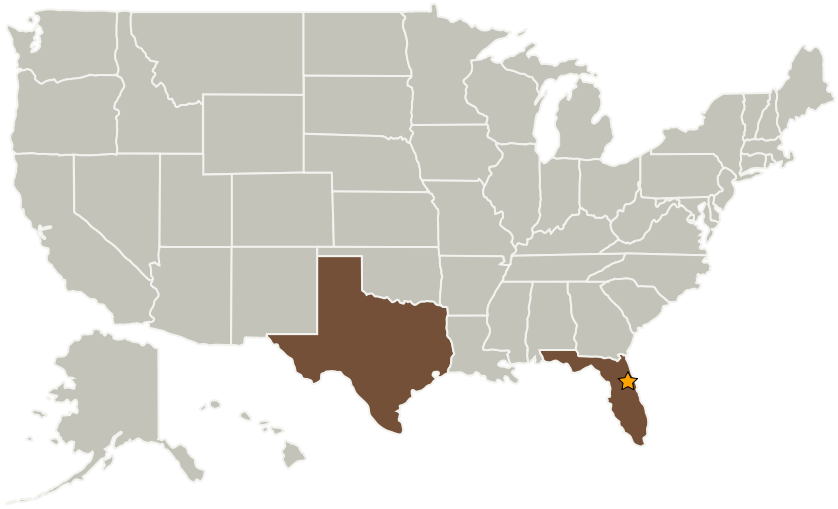
Project Introduction

Currently there is no on-station capability for disinfecting pick and eat crops, food utensils and production areas, or medical devices. This deficit is extended to projected long duration missions. Cold plasma (CP) cleaning is a dry, non-thermal process, which can provide broad spectrum antimicrobial activity yet causes little to no damage to the object being sanitized. Since CP uses no liquids, it has the distinct advantage when used in microgravity of not having to separate liquids from the item being cleaned. This project will develop a CP process and evaluate its ability to disinfect/sanitize crops and medical instruments.

Anticipated Benefits

Small, portable, cold plasma devices would provide an enhanced benefit to crew health and address issues concerning microbial cross contamination. Should CP technology prove effective for disinfection and/or sanitization, the next step would move to a CP unit that could fly to ISS.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida

PWD needle being used to rehydrate a food package.

Table of Contents

Cold Plasma Cleaning and Disinfection of Produce and Surfaces

Completed Technology Project (2016 - 2017)

Primary U.S. Work Locations	
Florida	Texas

Images

Project Image
PWD needle being used to rehydrate a food package.
(https://techport.nasa.gov/image/35771)

Project Website:

https://www.nasa.gov/directorates/spacetech/home/index.html

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Center / Facility:
Kennedy Space Center (KSC)

Responsible Program:
Center Innovation Fund: KSC CIF

Project Management

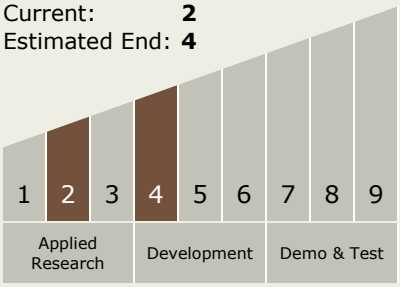
Program Director:
Michael R Lapointe

Program Manager:
Barbara L Brown

Principal Investigator:
Paul E Hintze

Technology Maturity (TRL)

Start: **2**
Current: **2**
Estimated End: **4**



Cold Plasma Cleaning and Disinfection of Produce and Surfaces

Completed Technology Project (2016 - 2017)

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.4 Environmental Monitoring, Safety, and Emergency Response
    - TX06.4.3 Protective Clothing and Breathing

Target Destinations

Earth, Others Inside the Solar System, Foundational Knowledge